

REMARKS

Reconsideration and allowance of the above identified patent application are hereby requested. Claims 1-22, 26-44, and 47-69 are now in the application with claims 1, 18, 26, and 42-44 being independent. Claims 1, 18, 26, 32, and 42-44 have been amended. Claims 23-25, 45, and 46 have been canceled. Claims 47-69 have been added. No new matter has been added. The Office's rejections are respectfully traversed.

Rejection Under 35 U.S.C. §102

Claims 1-5, 18, 23, 26-29, 42, 43, and 44 stand rejected under 35 U.S.C. §102(e) as allegedly being anticipated by U.S. Patent Application No. 2003/0077000 to Blinn et al. The Office's contentions are respectfully traversed.

Amended claim 1 recites (underlining added for emphasis) "...computing a filter for applying to the first image, including computing a spatially quantized representation of the filter wherein a degree of spatial quantization of the filter depends on one or more factors including a measure of scale relating the first sample grid and a desired sample grid; and storing the spatially quantized representation of the filter in a data structure comprising a location array that includes a plurality of elements representing fractional pixel locations based on a spatial quantization factor, wherein each element of the location array points to a sample array of filter values."

Blinn et al. do not disclose computing and storing the spatially quantized representation of the filter. Blinn et al. (para. 0040) disclose determining the transform used to create a digital representation, or image, of a source object after a rescale factor has been selected to be applied to the image. Further, Blinn et al. (para. 0041) teach (underlining added for emphasis) "After the

transform is determined, the position of the first output pixel 134 as it would lie upon rescale is determined. Operatively, this equates to calculating the shift ϵ that occurs as a result of rescaling the destination image by x ." Additionally, Blinn et al. (para. 0042) disclose (underlining added for emphasis):

As the next step in the rescaling process, a filter kernel is mapped to the sampled image 124 by applying the inverse of the calculated transform (T-I) to the sampled image 124....Mathematically, the process of mapping the filter kernel to the sampled image corresponds to multiplying the kernel with the waveform descriptive of the image 130 (with respect to the spatial domain) such that it is centered at the location of the output pixel to be generated 134. As shown in 3c, this results in placing the filter 136 over the row of pixels 126 such that one or more samples 138 lie under the kernel as it is centered.

Thus, Blinn et al. teach determining the position of an output pixel by calculating the shift ϵ that results from rescaling and mapping a filter kernel to the determined position of the output pixel. Blinn et al. further teach multiplying the image portion corresponding to the filter kernel by the filter values. As such, Blinn et al. do not teach computing a spatially quantized representation of the filter based on a measure of scale. Rather, Blinn et al. disclose using the calculated shift ϵ caused by rescaling only to determine the output pixel location, not to compute the filter kernel. Applying a general filter to a pixel location is not equivalent to computing a spatially quantized representation of a filter wherein a degree of spatial quantization of the filter depends on one or more factors including a measure of scale relating the first sample grid and a desired sample grid.

Further, Blinn et al. do not disclose storing the spatially quantized representation of the filter in a data structure comprising a location array that includes a plurality of elements

representing fractional pixel locations based on a spatial quantization factor. Blinn et al. (para. 0042) disclose “A filter kernel is an array of values that define the characteristics of the filter to be used for processing the pixels of the sampled image 124.” Blinn et al. do not, however, teach that the array of values includes a plurality of elements representing fractional pixel locations based on a spatial quantization factor, as is claimed.

Blinn et al. (paras. 0061-0062) also disclose using a lookup table containing the running total of the area of the filter kernel. For example, Blinn et al. (para. 0062) disclose (underlining added for emphasis):

Partial integral analysis, as described above, for computing the output pixel value offers various advantages. One advantage is that the time required for processing can be sped up by implementing the algorithm as a lookup table (LUT) of the running total of the area of the filter kernel 400 from left 416 to right 418. This minimizes the amount of computer resources and time often required for processing, and particularly eliminates the need for performing individual calculations of the area as the filter kernel 400 is shifted from pixel to pixel.

Thus, Blinn et al. teach a lookup table of summed values for the area of the filter kernel for a pixel position. Blinn et al. do not, however, disclose, teach, or suggest storing a spatially quantized representation of the filter in a data structure comprising a location array that includes a plurality of elements representing fractional pixel locations based on a spatial quantization factor, wherein each element of the location array points to a sample array of filter values, as is claimed.

For at least these reasons, claim 1 is allowable over Blinn et al. Claims 2-17 depend from claim 1. Therefore, dependent claims 2-17 are allowable for at least the reasons discussed with respect to claim 1.

Further, claims 26 and 42 contain subject matter similar to that of claim 1. Therefore, claims 26 and 42 are allowable for at least the reasons discussed with respect to claim 1. Further, claims 27-41 depend from claim 26 and are thus allowable for at least the reasons discussed with respect to claim 26. Additionally, claims 47-61 depend from claim 42 and are thus allowable for at least the reasons discussed with respect to claim 42.

Amended claim 18 recites (underlining added for emphasis) "...accepting data characterizing a geometric transformation relating the first sample grid and a desired sample grid; determining a measure of scale relating the first sample grid and the desired sample grid from the data characterizing the geometric transformation; computing a filter for applying to the first image, including selecting characteristics of the filter according to the determined measure of scale and computing a spatially quantized representation of the filter, wherein a degree of spatial quantization of the filter depends on the determined measure of scale ; and storing the spatially quantized representation of the filter in a data structure comprising a location array that includes a plurality of elements representing fractional pixel locations based on a spatial quantization factor, wherein each element of the location array points to a sample array of filter values.

As discussed above with respect to claim 1, Blinn et al. do not disclose, teach, or suggest the claimed computing a spatially quantized representation of the filter, wherein a degree of

spatial quantization of the filter depends on the determined measure of scale. Also as discussed above with respect to claim 1, Blinn et al. do not disclose, teach, or suggest storing the spatially quantized representation of the filter in a data structure comprising a location array that includes a plurality of elements representing fractional pixel locations based on a spatial quantization factor, wherein each element of the location array points to a sample array of filter values, as is claimed.

For at least these reasons, claim 18 is allowable over Blinn et al. Claims 19-22 depend from claim 18. Therefore, dependent claims 19-22 are allowable for at least the reasons discussed with respect to claim 18.

Claims 43 and 44 contain subject matter similar to that of claim 18. Therefore, claims 43 and 44 are allowable for at least the reasons discussed with respect to claim 18. Further, claims 62-65 depend from claim 43 and are thus allowable for at least the reasons discussed with respect to claim 43. Additionally, claims 66-69 depend from claim 44 and are thus allowable for at least the reasons discussed with respect to claim 44.

Rejection Under 35 U.S.C. §103

Claims 6-8, 19, and 30-32 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Blinn et al. in view of U.S. Patent No. 6,681,059 to Thompson et al. Further, claims 9-11, 24, 33-35, 45, and 46 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Blinn et al. in view of U.S. Patent Application No. 2004/0057634 to Mutoh. Additionally, claims 12-13 and 36-37 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Blinn et al. in view of Mutoh and in further view of U.S. Patent No. 6,111,566

to Chiba et al. Also, claims 14-16 and 38-40 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Blinn et al. Further, claims 17 and 41 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Blinn et al. in view of U.S. Patent Application No. 2003/0058216 to Lacroix et al. Additionally, claims 20-22 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Blinn et al. in view of Mutoh and in further view of U.S. Patent No. 6,886,034 to Blumberg. Finally, claim 25 stands rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Blinn et al. in view of Mutoh and in further view of U.S. Patent No. 6,181,834 to Li et al. These contentions are respectfully traversed.

Independent claims 45 and 46 have been canceled. Therefore, the corresponding proposed combination is moot. The remaining claims addressed by proposed combinations of references are believed allowable based on independent claims, as discussed above. Further, the proposed combinations do not cure the deficiencies of Blinn et al. discussed above.

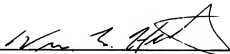
Concluding Comments

The foregoing comments made with respect to the positions taken by the Examiner are not to be construed as acquiescence with other positions of the Examiner that have not been explicitly contested. Accordingly, the above arguments for patentability of a claim should not be construed as implying that there are not other valid reasons for patentability of that claim or other claims.

In view of the above remarks, claims 1-22, 26-44, and 47-69 should be in condition for allowance, and a formal notice of allowance is respectfully requested. Please apply the fee of \$900 for 18 additional claims, and any other applicable charges or credits, to deposit account 06-1050.

Respectfully submitted,

Date: June 20, 2007



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